REMARKS

Claim Amendments

Claims 1-16 were filed with the original application. By the present amendment claims 2, 3 and 12 have been cancelled and claims 1, 4, 8, 9 and 10 have been amended. Therefore, claims 1, 4-11 and 13-16 remain pending in this case.

Applicants' present amendments to claims 1, 4, 8, 9 and 10 do not add any new matter and do not necessitate a further search by the Examiner. Support for these amendments can be found in specification as a whole and, more particularly, at page 8, lines 12-30 and page 9, lines 1-8 of the specification. It is submitted that these amendments are in form for acceptance and entry.

Applicants' present amendments include correction of the informalities identified in paragraph 6 of the Office Action (where such remain applicable in view of the cancellation of claims 2 and 3). In addition, these amendments correct a typographical error noted in claim 8. Further, the present amendments to claims 1 and 10 are intended to more precisely define the subject matter defined by these claims in light of the Examiner's comments.

Applicants acknowledge the content of paragraph 21 of the Office Action whereby the Examiner states that claims 8, 9, 14 and 15 would be allowable if rewritten in independent form to include the limitations of the base and any intervening claims.

Initially, the Office Action acknowledges the claim of priority to the previously filed Canadian application but asserts that a certified copy of the priority application has not been filed. To that end, enclosed please find a certified copy of Canadian Patent Application No. 2,279,774 to which priority is claimed.

Furthermore, the Office Action was issued on May 4, 2004. The two-month deadline for filing a response to the final Office Action was thus July 4, 2004. However, because July 4, 2004 fell on a Sunday and July 5, 2004 was a federal holiday, applicant

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respectfully submits that this response filed on July 6, 2004 was timely filed within the two-month deadline from issuance of the final Office Action.

<u>35 U.S.C. §103(a) Rejections</u>

Applicants respectfully requests reconsideration and withdrawal of the claim rejections by the Examiner having regard to the following submissions.

The Examiner has rejected claims 1-7, 10-13 and 16 under 35 U.S.C. 103(a) as allegedly being unpatentable over **Kaewell, Jr. et al.** in view of **Garner**. In support of this position, and in response to Applicants' previous submissions, the Examiner states in paragraph 3 of the Office Action:

> *Regarding claim 3, **Kaewell, Jr. et al.** teach that in the combination, the greatest proportion is of the strongest signal ... .*

With respect, applicants submit that **Kaewell, Jr. et al.** does <u>not</u> teach the combining method of their invention. Claim 1 has been amended to more precisely define the invention, whereby it is believed that the Examiner will now see that the invention patentably distinguishes over **Kaewell, Jr. et al.** (whether considered alone or in combination with **Garner**, or other prior art).

To demonstrate this, and the teachings which are, in fact, made by **Kaewell, Jr. et al.**, a Rule 132 Declaration of Dr. Larocque is submitted herewith.

As stated by Dr. Larocque, different diversity receiver combining methods are differentiated on the basis of how they select one input signal over the other, when their signal-to-noise ratios change, so that the better signal is selected. It is this selection criteria of the method of the claimed invention which makes it very different from the method of **Kaewell Jr. et al.**

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As defined by claim 1, applicants combining method implements the diversity ratio, α, as the proportion of a fixed margin the difference in power between the two signals has. More specifically, as defined by amended claim 1, the demodulated data signals (when above a predetermined combiner threshold) are combined in the following <u>specific</u> proportions:

(i)   where the difference between the strengths of the demodulated data signals is more than a predetermined margin, then 100% of (only) the strongest of the demodulated data signals; and,

(ii)   where the difference between the strengths of the demodulated data signals is less than the predetermined margin, then:
- for the strongest of the demodulated data signals, 50% plus a second percentage corresponding to a ratio between one-half of the difference between the strengths and the predetermined margin; and,
-   for the other demodulated data signal, 50% less said second percentage.

As stated by Dr. Larocque in his Declaration, the advantages of the foregoing combining method are three fold (at least): (i) it is straightforward to implement: (ii) it works regardless of the absolute power levels involved; and (iii) it provides a diversity gain close to the optimal diversity combining.

Dr. Larocque explains that the combining method described by **Kaewell Jr. et al.** represents a totally different implementation because the diversity ratio of **Kaewell Jr. et al.** is derived from the unsigned logarithm of the power of the input signals and this means that P_1 and P_2 are greater than the log reference $P_{ref.}$ More specifically, the diversity ratio, α, of **Kaewell Jr. et al.** does not depend only on the difference of power in dB but, instead, also depends on the absolute power values of the signals. By means of

Figures 1 and 2 appended to Dr. Larocque's Declaration, he shows that the lower the reference level of **Kaewell Jr. et al.** is, the less sensitive will be the diversity ratio to a difference in power between the input signals. Under paragraph 13 of his Declaration, Dr. Larocque sets out an example of circumstances in which two input signals would be combined very differently by applicants' claimed combiner as compared with the combining method of **Kaewell Jr. et al.** The result provided by **Kaewell Jr. et al.** is not desirable, whereas the result provided by the claimed invention better satisfies the objective of the diversity combining and, thus, is superior over **Kaewell Jr. et al.**

It is respectfully submitted that this superiority resulting from the foregoing differences between the claimed invention and **Kaewell Jr. et al.** is <u>not</u> obvious and this is true with or without also considering the second cited reference to **Garner**. Indeed, the Examiner's comments with reference to **Garner** confirm that it was thought by the Examiner to be relevant only in its use of a predetermined margin to compare the difference in signal strengths. It will be understood, however, from the foregoing explanation of the applicants' claimed invention and applicants' previous submissions describing **Garner**, that **Garner**'s teachings are not pertinent.

Specifically, as previously submitted, **Garner** discloses pre-detection IF combining which necessitates co-phasing and subjects it to a different set of constraints than that of Applicant's invention. In **Garner** the IF signals are either combined with equal weight or one or the other is squelched i.e. switched-off. The combining of **Garner** is done after each signal has been passed through an automatic gain controller (AGC) and the criteria applied, to squelch a signal "on" or "off", are based on the gains of the AGC and a "signal dispersion" detector, neither of which criteria is present or applicable to Applicant's present invention.

Accordingly, it is submitted that, like **Kaewell Jr. et al.**, **Garner** does not render obvious the subject matter of any of the present claims and this is true, whether the reference is considered alone or in combination with other prior art.

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In view of the present claim amendments and the foregoing submissions, and further, in light of the Declaration of Dr. Larocque submitted herewith, reconsideration and withdrawal of the obviousness rejection is respectfully requested.

In the event that the Examiner cannot allow the present application for any reason, the Examiner is encouraged to contact the undersigned agent, Dana L. Tangren, at (801) 533-9800, to discuss resolution of any remaining issues.

Dated this 6th Day of July 2004.

Respectfully submitted,

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